REMARKS

In the Office Action dated December 12, 2005, claims 1-14 were rejected under 35 U.S.C. §102(e) as being anticipated by Suuronen.

In response, each of independent claims 1 and 7 has been amended to state that a 3D height image dataset is acquired with the optical 3D sensor, representing at least a portion of the surface of the examination subject. Support for these changes in independent claims 1 and 7 is present in the specification as originally filed in the paragraph bridging pages 10 and 11, and in the remaining paragraphs on page 11. An example of a calculation that is suitable for use to determine the height of the subject at a location eliminated by a laser, by triangulation, is described at page 5 of the present specification, in the second full paragraph.

Applicant respectfully submits that the Suuronen reference does not disclose the subject matter of amended claims 1 and 7, nor any of the claims depending therefrom, for the following reasons.

The Suuronen reference discloses an x-ray imaging apparatus having an imaging system with a carrier support, having an x-ray source and a radiation detector mounted thereon. An examination subject is irradiated, and radiation attenuated by the subject is detected by the detector. The supporting arrangement allows the acquisition of a series of 2D projections of the subject with the radiation source and the radiation detector. The Suuronen reference, however, does not disclose an optical 3D sensor mounted to the carrier support, which acquires a 3D height image dataset representing at least a portion of a surface of the examination subject.

Instead, the Suuronen reference discloses a conventional camera, as described at column 2, lines 59-64, that is capable of obtaining 2D projection images of the subject with the same imaging geometry as the x-ray source. There is no teaching in the Suuronen reference that this camera does, or is able to, obtain 3D representations.

The Examiner referred to the camera 13 as being an "optical 3D sensor" but Applicants do not agree with this statement of the Examiner for several reasons. First, as noted above, the item 13 is specifically referred to at column 2, line 15 of the Suuronen reference as a "photographic camera," and this is stated to be a camera that records on standard photographic film, or a video camera that is capable of taking still pictures (column 2, lines 61-64). Moreover, if the camera 13 were, in fact, capable of acquiring 3D image data, there would have to be some type of processor disclosed or provided in the Suuronen reference for processing such 3D image data. No such processor is disclosed or suggested anywhere in the Suuronen reference. Although the photographic camera 13 is indicated as being connected to a computer 20 via a communication link 19, there is no disclosure anywhere in the Suuronen reference that anything but the aforementioned 2D images are transmitted via this communication link.

Moreover, in the description in the Suuronen reference describing the use that is made of the aforementioned images, only the superimposition of an x-ray image with a photograph taken at the same angle of the examination subject is described. Suuronen also states that markers can be brought into the photographs to specify the dimensions of the x-ray images when superimposed with the photograph. This discussion is entirely consistent with the use of 2D images, but provides no

indication whatsoever that any type of 3D image data are generated in the Suuronen reference.

The Suuronen reference, therefore, does not disclose all of the elements of independent claims 1 and 7 as arranged and operating in those claims, and thus does not anticipate either of those independent claims, nor any of the dependent claims respectively depending therefrom.

Claims 1-14 also were rejected under 35 U.S.C. §103(a) as being unpatentable over Navab in view of Asahina. This rejection is also respectfully traversed, with regard to amended independent claims 1 and 7 and the claims depending therefrom, for the following reasons. The Navab reference discloses a technique for calibrating an x-ray imaging system without having to expose the patient to x-rays. The Examiner stated the Navab reference discloses an optical 3D sensor in the form of element 22, however, element 22 in the Navab reference refers to optical cameras that are attached to the mobile C-arm in a spatially fixed relationship thereto (column 3, lines 62-64). One of these cameras is movable with the x-ray source, the other is movable with the detector. The examiners are used in combination with an optical phantom and an x-ray phantom to calibrate the spatial positions of the x-ray system, specifically the x-ray source and the radiation detector, for each x-ray image that is acquired.

The cameras 22 in the Navab reference do not function as a 3D sensor that acquires a 3D height image dataset representing a surface of the examination subject, nor even of the aforementioned optical phantom. Instead, it is the optical phantom itself that has *predetermined* 3D spatial relationships of the elements therein, that are defined in the images obtained by the cameras. Without the optical

phantom having the aforementioned predetermined 3D spatial relationships, it would not be possible to define spatial positions by using only the cameras 22 by themselves. By contrast, the subject matter disclosed and claimed in the present application does not require an optical phantom in order to obtain the aforementioned 3D height image dataset.

Moreover, in the Navab reference, for every image acquisition the optical images of the optical phantom must be simultaneously acquired, thereby making it impossible to obtain two images of the patient at the same time.

This being the case, regardless of whether the Examiner is correct with respect to the Asahina reference teaching the practice of obtaining an x-ray projection of an examination subject and further using an optical sensor for acquiring an image dataset of the surface contour of the examination subject and superimposing the two, a person of ordinary skill in the field of x-ray technology would have no basis to modify the Navab reference in accordance with those teachings of Asahina. As noted above, the concepts disclosed in Navab and Asahina are fundamentally incompatible, and one or the other procedure must be used, but these two techniques cannot be mixed. It may true, as noted by the Examiner, that Asahina images the examination subject directly for greater accuracy and precision, however, as noted above, the Navab reference explicitly wants to avoid imaging the subject in order to reduce the radiation exposure to the subject, and therefore discloses the use of the optical phantom. As noted above, without the use of the optical phantom having predefined 3D spatial relationships therein, the use of the two cameras in Navab, by themselves, would be meaningless. Therefore, if the use of the optical phantom in Navab were eliminated, in favor of direct imaging

of the examination subject as disclosed in Asahina, not only would this be directly contrary to the intended goal of the Navab reference of reducing radiation exposure, but also this would destroy the intended manner of operation of the Navab reference, which necessarily makes use of such an optical phantom, with the aforementioned predefined 3D relationships.

Therefore, not only would a person of ordinary skill in the field of x-ray imaging technology have no basis to modify the Navab reference in accordance with the teachings of Asahina, even if such a modification were made (for reasons unknown to the present Applicant), the separate matter of claims 1 and 7 still would not result.

Therefore, none of claims 1-14 would have been obvious to a person of ordinary skill in the field of x-ray imaging technology under the provisions of 35 U.S.C. §103(a), based on the teachings of Navab and Asahina.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,

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